

The hurricane began at 3:40 p. m. and ended at 2:25 a. m. of the 9th, lasting, therefore, ten hours and forty-five minutes, during which time there was a total wind movement of 514 miles, giving an average of 48 miles per hour. The maximum, 62 miles per hour, occurred between 8:18 p. m. and 8:23 p. m. The extreme, 120 miles per hour, occurred at 5:51 p. m. The wind was from the southwest during the entire storm.

The following special barometer readings were made, viz:

September 8	5:30 a. m.	29.743
	7:00 a. m.	29.742
	8:00 a. m.	29.724
	9:00 a. m.	29.703
	10:00 a. m.	29.675
	12:00 noon	29.598
	1:00 p. m.	29.578
	2:00 p. m.	29.536
	3:00 p. m.	29.532
	4:00 p. m.	29.517
	5:00 p. m.	29.506
	6:00 p. m.	29.518
	7:00 p. m.	29.536
	8:00 p. m.	29.617
	9:00 p. m.	29.644
	11:30 p. m.	29.689
September 9	1:00 a. m.	29.678
	2:00 a. m.	29.685

#### PROCEEDINGS OF THE MEETING OF THE INTERNATIONAL METEOROLOGICAL COMMITTEE, AT ST. PETERSBURG, SEPTEMBER 2-7, 1899.

By A. Lancaster, from notes by St. Hepites, Director of the Meteorological Institute of Roumania.

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The International Meteorological Committee held its annual meeting at St. Petersburg from the 2d to the 7th of September. The attendance was not very numerous; only eight members of the Committee were able to accept the invitation of General Rykatcheff, Director of the Central Physical Observatory of Russia.

The opening session was presided over by His Imperial Highness the Grand Duke Constantine, who delivered a very interesting address which elicited great applause. He referred to the service rendered to meteorology by Kupffer, the founder of Russian climatology. After this address the various reports submitted to the committee for discussion were read as follows:

1. Report by Rücker on terrestrial magnetism and atmospheric electricity.

It was decided to maintain the Committee on magnetism as a distinct organization, but under the immediate control of the International Committee.

2. Report by Hildebrandsson on the observations of clouds.

3. Report by Hergesell on balloon ascensions.

4. Report by Violle on solar radiation and insolation.

In the session of September 3, the question proposed by General Rykatcheff was considered: "Is it desirable that the International Committee should consider earthquake observations?" The response was as follows:

"The Committee recommends that meteorological institutions contribute to seismic observations."

The question of antarctic exploration was also discussed at this session.

The Committee expressed the opinion that it is highly desirable: (1) That the results of such explorations should be supplemented by the data from the observatories already existing in the Southern Hemisphere and by that obtained from vessels navigating the seas of that hemisphere; (2) that new meteorological stations be established in the southern portion of the Southern Hemisphere, and especially that magnetic observatories be organized there; (3) that mag-

netic determinations over the whole globe be made in conjunction with those of exploring expeditions.

The interesting investigations of Hildebrandsson on the great centers of atmospheric action gave rise to the following resolution:

"The Committee appreciates the great interest attached to systematic observations made in those regions of the globe which seem to have a special importance in relation to our knowledge of the general circulation of the atmosphere."

The Committee is very happy to be informed by von Bezold and Mascart of the plans of His Serene Highness the Prince of Monaco as to the establishment of a complete meteorological and magnetic observatory in the Azores. His Highness, as we know, is aided in the execution of this project by Captain Chaves of the Portuguese Navy who has been devoting himself to this work for several years.

On the subject of the "Definition of the meteorological day," it was decided that:

"If the computation of the daily mean be not made according to the exact formula:

$$\left(\frac{0^h + 24^h}{2} + 1^h + 2^h + 3^h \dots + 23^h\right) \div 24,$$

it will be proper to consider the observation-at midnight as belonging to the end of the day, as is done at most stations, and to adopt the formula:

$$(1^h + 2^h + 3^h \dots + 24^h) \div 24."$$

On the subject of the proposition of Hann to publish in a special form and definite manner the tables of the diurnal variation of the temperature for each country, the Committee, while fully appreciating the interest and importance of this proposition, is of opinion that, as this question is one of general interest, it should be considered by a special commission [subcommittee] which could decide upon a form of table to be used by all countries. While awaiting the final decision as to this form, the directors of the various meteorological institutions will certainly be glad to furnish the data in manuscript for their first order stations whenever requested.

As to the importance of actinometric observations (a question also introduced by Hann) the Committee can not do otherwise than concur in the wish expressed by this eminent Austrian meteorologist. It hopes that the commission on radiation and insolation will kindly examine the subject and make a report on it to the next International Congress. Violle has already presented a note on the various methods of making actinometric measurements; this note will be published in the Proceedings of the Committee.)

On the following proposition by Pernter that: "It is desirable that observations with the psychrometer be restricted and that observations with the hair hygrometer be increased," the Committee made no decision. A complete review of the subject must first be furnished.

In a letter sent to the Committee, Paulsen, Director of the Meteorological Institute of Denmark asks for the establishment of a cable between Iceland and Europe in the interest of weather predictions. It is well known that for a long time meteorologists have insisted upon the great importance of receiving, daily, information as to the current atmospheric conditions in Iceland, in order to improve the predictions of the weather for England and the states of western and northern Europe. But as the limited commercial intercourse between Iceland and Europe does not promise a sufficient income to compensate for the expense of laying a cable, therefore, the idea of the establishment of telegraphic communication between that island and the coast of Scotland has never been carried out.

The solution of the question has, however, been greatly advanced, thanks to the intelligent initiative of the Danish

Government and the support of the Great Northern Telegraph Company (Grande Compagnie des Télégraphes du Nord). This company undertakes, for an annual payment of only 337,500 francs (about \$68,000), during twenty-five years, to establish and work a cable starting from the Shetland Islands, touching at the Faroe Islands, and ending in Iceland. The Danish Government, on its part, will defray the expenses of the establishment and maintenance of the necessary meteorological stations and of the daily meteorological cablegrams; it will undertake to complete the hydrographic work that is a necessary preliminary to laying the cable, and, finally, it will pay an annual subvention of 125,000 francs for twenty years.

It therefore only remains to obtain a further annual sum of 212,500 francs in order to definitely assure telegraphic communication with Iceland, and this would be equally as important to the interests of commerce as it would to the needs of meteorology. It is believed that the states of northern Europe and America, which are especially interested in the realization of this project, will certainly guarantee the money that is still needed.

According to Paulsen's proposition these various states should, in order that this project may be carried out, subscribe for ten years to the meteorological cablegrams that will be sent.

The committee can only confirm the opinion that it has already expressed on several occasions, as to the great importance of the daily telegraphic communication of information relative to the atmospheric conditions in Iceland. It also expresses a hope for the success of the efforts made in this matter by the Danish Government.

A proposition was then made by Neumayer and von Bezold relative to the publication, by the Deutsche Seewarte in Hamburg, of a periodical international bulletin of the weather. According to the authors it should appear as an appendix to the Hamburg daily Wetterbericht, and contain a table of 10-year means of the daily international a. m. observations for about 100 stations. These means of temperature, barometric pressure; and rainfall should appear in columns alongside of the normal values for these three elements.

The Committee was of opinion that it would be useful to have a model of the proposed publication, in order that each

meteorological service might appreciate its scope and form an idea as to the extent to which it could cooperate in it.

A committee was appointed, composed of Messrs. Pernter, Billwiller, Neumayer, Rykatcheff, Mohn, and Tacchini, under the presidency of Pernter, to consider the extension and improvement of the international service of meteorological telegrams for use in the prediction of the weather.

Finally, it was decided that the International Committee and the various commissions or subcommittees appointed at the Conference at Paris in 1896, and now present in St. Petersburg (i. e., the commissions on aeronautics, magnetics, solar radiation, weather telegraphy, etc.), should meet in 1900 in Paris immediately after the Congress on Meteorology, which will be held on the occasion of the Exposition. This Congress will probably assemble during the first half of September.

The meetings of the Committee were agreeably diversified by excursions and instructive visits to the principal scientific establishments in St. Petersburg.

On the day of the opening there was at 9 p. m. a reception at the Central Physical Observatory Nicolas.

The following day (Sunday) an excursion to Cronstadt and Peterhof on a naval vessel.

On Monday, a visit to the Winter Palace and to the Gallery of the Hermitage.

On Tuesday, an excursion to the Aeronautic Park, and thence to the Magnetic and Meteorological Observatory at Pavlosk.

On Wednesday, a visit to the Astronomical Observatory at Pulkova.

On Thursday, an inspection in detail of the Central Physical Observatory. In the evening, a conference given by General Tillo to the Geographical Society.

On Friday, a visit to the Imperial Library and to the Bureau of Weights and Measures.

This program shows that the time was well filled during the whole week of the meeting of the Committee. The Russian Government, according to its traditions, always receives with great magnificence the scientists who hold their meetings in Russia, and on this occasion it extended a grand welcome to the meteorologists. The delegates have carried away with them a most agreeable remembrance of their visit to St. Petersburg.

## NOTES BY THE EDITOR.

### RESULTS OF WORK WITH BALLOONS AND KITES AT TRAPPES, FRANCE.

In the Comptes Rendus, Paris, July 10 and August 21, 1899, Monsieur L. Teisserenc de Bort, the proprietor of the Meteorological Observatory of Trappes near Paris, gives some account of recent work at that place. In his first article he says:

The use of kites for carrying self-registers up into the free air has for several years been practised successfully by the meteorologists of the United States. During the past four years, Mr. A. Lawrence Rotch has accumulated very interesting data at the Blue Hill Observatory near Boston.

Since the autumn of 1897 we have been carrying on analogous researches at the Observatory for Dynamic Meteorology at Trappes<sup>1</sup> and in the course of the year 1898 our self-registers have often attained an altitude of 2,000 meters (6,562 feet).

During the present year, thanks to the improved construction of our kites, according to the Hargrave cellular system, which is also employed in America, we were able to raise our apparatus to 3,940 meters (12,927 feet) on June 14; to 3,950 meters (11,778 feet) on the 15th; and more than 3,300 meters (10,827 feet) on July 3.

The atmospheric soundings made at Trappes on more than a hun-

dred days clearly show the different characters of the rate of diminution of temperature with altitude within the areas of high pressure and within the areas of low pressure, respectively. Within the high areas, as soon as one rises a few hundred meters above the soil, he perceives the rate of decrease of temperature to be diminishing and indeed often observes an inversion of the rate; in the low areas, on the contrary, the rate of diminution is rapid and attains the value indicated by the adiabatic rate for air that has more or less moisture.

With respect to the winds our ascensions show: (1) That during clear weather and high barometric pressure the velocity of the wind generally diminishes in proportion as we ascend above the ground up to an altitude that varies between 1,500 and 3,000 meters; (2) on the other hand, for cloudy weather and areas of low temperature the wind increases appreciably with the altitude, particularly in the neighborhood of the stratum of lower cloud.

In his second article on the temperature of the free air, as shown by 90 ascensions of the sounding balloon, M. Teisserenc de Bort says:

The knowledge of the distribution of temperature with altitude at different seasons of the year and under different meteorological conditions is a fundamental datum for the physics of the globe and for meteorology.

Hitherto our information as to the temperature of the free air has been very limited because of the small number of scientific balloon ascensions carrying observers to great heights, and also because these

<sup>1</sup>Trappes is 7 miles from Versailles and about 36 kilometers, or 16 miles, west-southwest from the office of the Central Meteorological Bureau of Paris.